

CLAIMS

1. A piezoelectric lighter, including a casing, a reservoir containing fuel, a valve
5 operable by a user for releasing fuel from the reservoir, a piezoelectric device for
generating a spark for igniting the fuel, and at least a first control element,

wherein the first control element is normally biased to a rest position and is
displaceable by the user in at least a first direction to impart an actuating motion
10 to the piezoelectric device;

and further including an intermediate member for transferring the actuating
motion from the first control element to the piezoelectric device,

15 together with enabling means operable by the user to move the intermediate
member in a second direction from a normal, disabled position, wherein on
displacement of the first control element in the first direction, the actuating
motion is not transferred to operate the piezoelectric device,

20 to an enabled position wherein on displacement of the first control element in the
first direction, the actuating motion is transferred to operate the piezoelectric
device;

characterised in that the intermediate member extends from a proximal end to a
25 distal end,

the proximal end being located at a fixed point on the first control element so as to
be movable together with the first control element in the first direction,

30 the distal end being movable relative to the proximal end in the second direction,

and in that the distal end has a first engagement surface and the piezoelectric device includes a second engagement surface,

and in use the first engagement surface engages the second engagement surface.

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2. A piezoelectric lighter, including a casing, a reservoir containing fuel, a valve operable by a user for releasing fuel from the reservoir, a piezoelectric device for generating a spark for igniting the fuel, and at least a first control element,

10 wherein the first control element is normally biased to a rest position and is displaceable by the user in at least a first direction to impart an actuating motion to the piezoelectric device;

15 and further including an intermediate member for transferring the actuating motion from the first control element to the piezoelectric device,

20 together with enabling means operable by the user to move the intermediate member in a second direction from a normal, disabled position, wherein on displacement of the first control element in the first direction, the actuating motion is not transferred to operate the piezoelectric device,

to an enabled position wherein on displacement of the first control element in the first direction, the actuating motion is transferred to operate the piezoelectric device;

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characterised in that the intermediate member extends from a proximal end to a distal end,

30 the proximal end being located at a fixed point on a part of the piezoelectric device so as to be movable together with the said part of the piezoelectric device in the first direction,

- the distal end being movable relative to the proximal end in the second direction,
and in that the distal end has a first engagement surface and the first control
5 element includes a second engagement surface,
and in use the first engagement surface engages the second engagement surface.
3. A piezoelectric lighter according to claim 1, characterised in that the
10 intermediate member is formed as a resilient leaf.
4. A piezoelectric lighter according to claim 2, characterised in that the
intermediate member is formed as a resilient leaf.
- 15 5. A piezoelectric lighter, including a casing, a reservoir containing fuel, a valve
operable by a user for releasing fuel from the reservoir, a piezoelectric device for
generating a spark for igniting the fuel, and at least a first control element,
wherein the first control element is normally biased to a rest position and is
20 displaceable by the user in at least a first direction to impart an actuating motion
to the piezoelectric device;
and further including an intermediate member for transferring the actuating
motion from the first control element to the piezoelectric device,
25 together with enabling means operable by the user to move the intermediate
member in a second direction from a normal, disabled position, wherein on
displacement of the first control element in the first direction, the actuating
motion is not transferred to operate the piezoelectric device,

to an enabled position wherein on displacement of the first control element in the first direction, the actuating motion is transferred to operate the piezoelectric device;

5 characterised in that the intermediate member is a separate element mounted independently of the first control element and of the piezoelectric device for translational movement in the second direction between the disabled position and the enabled position,

10 the intermediate member having two first engagement surfaces and the first control element and the piezoelectric device having each respectively a second engagement surface,

15 wherein in use, in the enabled position the first engagement surfaces engage each respectively of the second engagement surfaces,

and in the disabled position the first engagement surfaces engage neither of the second engagement surfaces.

20 6. A piezoelectric lighter according to any of claims 1 – 5, characterised in that the enabling means is operable to move the intermediate element from the disabled to the enabled position when the first control element is in the rest position, but inoperable to move the intermediate element from the disabled to the enabled position when the first control element is displaced through at least an initial predetermined distance in the first direction.

7. A piezoelectric lighter according to claim 6, characterised in that the lighter includes first and second blocking surfaces,

30 the first blocking surface forming part of the intermediate member,

and in the disabled position of the intermediate member, the first blocking surface is engageable with the second blocking surface by operation of the enabling means after displacement of the first control element through the predetermined distance

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so as to prevent movement of the intermediate member from the disabled to the enabled position.

8. A piezoelectric lighter according to claim 6, characterised in that at least a first
10 and a second engagement surface are substantially in abutment when the intermediate member is in the enabled position and the first control element is in the rest position,

such that the predetermined distance corresponds to a negligible movement of the
15 first control element in the first direction.

9. A piezoelectric lighter according to any of claims 1 – 5, characterised in that disengagement means are provided for urging the intermediate member towards the disabled position when the first control element is displaced in the first
20 direction.

10. A piezoelectric lighter, including a casing, a reservoir containing fuel, at least a first control element, and two operating components operable by a user,

25 the operating components comprising a valve for releasing fuel from the reservoir and a piezoelectric spark generating device for igniting the fuel,

wherein the first control element is normally biased to a rest position and is
displaceable by the user in at least a first direction to impart an actuating motion
30 to at least one said operating component;

and further including engagement means for transferring the actuating motion from the first control element to the said at least one operating component,

together with enabling means operable by the user to set the engagement means
5 from a normal, disabled condition, wherein on displacement of the first control element in the first direction, the actuating motion is not transferred to operate the said at least one operating component,

10 to an enabled condition wherein on displacement of the first control element in the first direction, the actuating motion is transferred to operate the said at least one operating component;

characterised in that the engagement means include a first frictional engagement surface

15 and there is provided a second frictional engagement surface,

wherein in the disabled condition the frictional engagement surfaces are arranged so as to move past each other when the first control element is displaced in the
20 first direction,

and the enabling means are operable to engage the frictional engagement surfaces together in a plurality of positions corresponding to the progressive displacement of the first control element in the first direction.

25 11. A piezoelectric lighter according to claim 10, characterised in that the engagement means comprise an intermediate member, and the first frictional engagement surface is formed on the intermediate member.

30 12. A piezoelectric lighter, including a casing, a reservoir containing fuel, at least a first control element, and two operating components operable by a user,

the operating components comprising a valve for releasing fuel from the reservoir and a piezoelectric spark generating device for igniting the fuel,

5 wherein the first control element is normally biased to a rest position and is displaceable by the user in at least a first direction to impart an actuating motion to at least one said operating component;

10 and further including an intermediate member for transferring the actuating motion from the first control element to the said at least one operating component;

15 together with enabling means operable by the user to set the intermediate member from a normal, disabled condition, wherein on displacement of the first control element in the first direction, the actuating motion is not transferred to operate the said at least one operating component,

20 to an enabled condition wherein on displacement of the first control element in the first direction, the actuating motion is transferred to operate the said at least one operating component;

25 characterised in that the intermediate member includes first and second ends operatively connected respectively with the first control element and the said at least one operating component, and an intermediate section disposed between the first and second ends,

30 and the intermediate section is flexible so as to define a variable distance of separation between the first and second ends,

wherein in the disabled condition the distance of separation between the first and second ends is reducible by displacement of the intermediate section in a second direction,

and in the enabled condition the displacement of the intermediate section is restrained in the said second direction during movement of the intermediate member in the direction of the actuating motion.

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13. A piezoelectric lighter according to claim 12, characterised in that the first and second ends are pivotably attached respectively to the first control element and to the said at least one operating component,

10 and the intermediate section includes a pivotable joint.

14. A piezoelectric lighter according to any of claims 10 – 13, characterised in that stop means are provided for limiting movement of the first control element in the first direction so as to define a maximum distance (M) of displacement

15 thereof;

and further characterised in that the said at least one operating component is inoperable by an actuating motion substantially shorter than the maximum distance (M) of displacement of the first control element;

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wherein during operation of the first control element, the distance between the first control element and the said at least one operating component is proportional to a force applied to the enabling means by the user, such that when insufficient force is applied to the enabling means the said at least one operating component is

25 not actuated.

15. A piezoelectric lighter according to any of claims 1 – 5 or 11 – 13, characterised in that the enabling means bears slidingly on the intermediate member.

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16. A piezoelectric lighter according to any of claims 1 – 5 or 10 – 13, characterised in that the enabling means comprises a second control element separate from the first control element, and the first and second control elements are spaced apart such that they cannot be operated together by a single digit of a
5 user.

17. A piezoelectric lighter according to claim 16, characterised in that the first and second control elements are operable together by a thumb and a finger of one hand of an adult user.

10 18. A piezoelectric lighter according to claim 16, characterised in that locking means are provided,

15 wherein the locking means normally prevent the operation of the second control element

and are operable by the user to enable the operation of the second control element.

19. A piezoelectric lighter, including a casing, a reservoir containing fuel, at least
20 a first control element, and two operating components operable by a user,

the operating components comprising a valve for releasing fuel from the reservoir and a piezoelectric spark generating device for igniting the fuel,

25 wherein the first control element is normally biased to a rest position and is displaceable by the user in at least a first direction to impart an actuating motion to at least one said operating component;

30 and further including enabling means operable by the user to set the lighter from a normal, disabled condition, wherein on displacement of the first control element

in the first direction, the actuating motion is not transferred to operate the said at least one operating component,

5 to an enabled condition wherein on displacement of the first control element in the first direction, the actuating motion is transferred to operate the said at least one operating component;

characterised in that the lighter is set to the enabled condition by continuous operation of the enabling means during displacement of the first control element 10 in the first direction,

and in that there are provided disengagement means,

wherein when the operation of the enabling means is interrupted during 15 displacement of the first control element in the first direction the disengagement means return the lighter to the disabled condition.

20. A piezoelectric lighter according to claim 19, characterised in that when the lighter is returned to the disabled condition by the disengagement means, the 20 lighter cannot be reset to the enabled condition until the first control element is returned to the rest position.

21. A piezoelectric lighter according to claim 19 or claim 20, characterised in that the enabling means is operable to set the lighter from the disabled to the enabled 25 condition when the first control element is in the rest position, but inoperable to set the lighter from the disabled to the enabled condition when the first control element is displaced through at least an initial predetermined distance in the first direction.